



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO. <i>77</i>
-----------------	-------------	----------------------	-------------------------------

EXAMINER

ART UNIT	PAPER NUMBER 11
----------	--------------------

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/687.495

Applicant(s)

CROWLEY ET AL

Examiner

Scott Geyer

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 11 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 8-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-7 and 13-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 23 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application):
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9 and 10
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

DETAILED ACTION

Election/Restrictions

1. Claims 8-12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The formal drawings received on 23 March 2001 are acceptable.

Specification

4. The specification as amended by applicant is acceptable.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5, 7, 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman (5,172,213) in view of Casto (5,172,214).

Zimmerman teaches a semiconductor chip mounted on a chip paddle with adhesive (column 3, lines 8-19). The chip is wired to the lead frame with internal and

external leads. The chip, internal leads, wiring, and chip paddle are encapsulated in a resin (see figures 1 and 2).

Zimmerman does not teach a chip that is mounted on top of the chip paddle or exposed internal leads.

However, Casto teaches a chip which is mounted on top of the paddle, and the lower surface of the internal leads and paddle are not enclosed in encapsulant (see figure 1, items 65 and 68). Casto also teaches theta internal leads (item 68 in figure 1) can be exposed on the bottom and on the sides (column 3, lines 37-40).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the disclosure of Casto to modify Zimmerman such that an encapsulated device is produced. The invention of Zimmerman, as modified by Casto, would require less resin, as the entire underside is not encapsulated. Further, the leads and paddle are left unexposed for further connection to other electronic devices if needed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Zimmerman and Casto to obtain the invention as specified in claims 1, 5, 7, 13, 18 and 19.

7. Claims 2-4, 6, 14-17 and 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmerman (5,172,213) and Casto (5,172,214) as applied to claim 1 above, and further in view of Aono et al. (5,521,429).

Neither Zimmerman or Casto teach an etched part of the chip paddle on its underside.

However, Aono et al. teach an etched part of the paddle wherein the thin part is within the encapsulant and the un-etched part lies alongside the base which is not covered by the encapsulant (see figures 1A and 2A). The etched paddle and the leads are in plane with one another (column 2, lines 53-56). Furthermore, Aono et al. does not explicitly teach etching of the paddle of "about 10% to about 90% of the lower side" as applicant has claimed in claims 2, 14 and 21. However it would be obvious, given the applicants' extremely broad range which can be construed as less than 10 percent and greater 90%, taken in conjunction with the disclosure and figures 1A and 2A of Aono et al., that Aono et al. teach an etching percentage somewhere in the range of about 10% to 90%.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to provide etched parts of the paddle so as to provide leads which can be fully encapsulated without having to encapsulate the entire paddle, thereby saving resin. Furthermore, it would have been obvious to construct the package such that the leads and paddle are in plane with one another for ease in manufacturing. The planarity of the leads and paddle allow for the device to sit flat upon a plane and allow for the rest of the package to be encapsulated, furthering the ease at which the underside is not encapsulated.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Zimmerman and Casto with that of Aono et al. to obtain the invention as specified in claims 2-4, 6, 14-17 and 20-25.

8. As to the language on lines 7-11 in claim 19 and in claims 22, 23 and 24, applicant should note that this is merely "intended use" language which cannot be relied upon to define over Zimmerman and Casto, since Zimmerman and Casto disclose all of the claimed elements and recited relationships. Moreover, the examiner will presume that the recited intended use is inherent in Zimmerman and Casto since all of the claimed elements and the relationships there-between are met by Zimmerman and Casto.

If the recited intended use is not inherent in Zimmerman and Casto, then this would mean that the applicant has failed to recite one or more critical features of the present invention, i.e. a problem under 112 (1st paragraph).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Geyer whose telephone number is (703)306-5866. The examiner can normally be reached on weekdays, between 9:00am - 5:30pm. The examiner may also be reached via e-mail: **scott.geyer@uspto.gov**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles L. Bowers can be reached on (703)308-2417. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-0142 for regular communications and (703)308-7722 for After Final communications.

Application/Control Number: 09/687,495
Art Unit: 2813

Page 6

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

sbg
October 19, 2001

Charles J. Borne Jr.
Charles J. Borne Jr.
Supervisory Patent Examiner
Technology Center 2800